General Studies (Test Code : 1497)

Name - Sakshi Mishra Medium - English

Registration No. - 322622 Centre - Online

Date - 12.06.21.

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
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15	15	
16	15	
17	15	
18	15	
19	15	
20	15.	

Total Marks Obtained →

REMARKS.

1. Trace the evolution of Pahari paintings along with their prominent features.

(150 words) 10M.

Between the 17th and 19th centuries, Pahari painting flourished under the patronage of various kingdoms along Himalayan foothills.

While the exact origin of this school is unclear; it can be associated to the influx of Mughal artists after Aurangzeb discouraged such arts in his court and the painters lost patronage in Delhi.

Pahari school mainly developed in two regions - Basholi and Kangra. The PROMINENT FEATURES of this incude-

1) Basholi School

- First patron - Raja Kripal Singh
- Expressive faces, big eyes like lotus petals
- High use of primary colours
- Themes - Ramayana, Gita Govindam, Bhanudatt's Rasmanjari
- Famous Painters - Devi Das (known

for Radha Krishna paintings).

2) Kangra School

- Patrons - Govardhan Singh and Sansar Chand.

- Paintings contained elements of sensuality and intelligence

- Themes - Love scenes of Krishna, Satsai of Bihari Lal, Nal-Damyanti.

Thus, pahari paintings are an important example of the regional schools of painting in India.

2. On the vast panorama of world literature, Kalidasa is considered as a literary genius, second to none. Discuss in the context of writings of Kalidasa.

(150 words) 10 M.

Included among one of the Nine Gems (Navratna) of Gupta ruler Chandragupta II, Kalidasa spearheaded the Golden Era of Sanskrit literature in India. He is considered second to none - neither his contemporaries (Bhasa, Amarsimha), nor those who wrote after him.

Kalidasa's works had a unique blend of History and Mythology. For instance, his work ~~Abhi~~ Kumarsambhavam is related to the legend of Shiva - Parvati.

'Meghdootam' reflects his literary finesse. The smart use of metaphors and an imagination that knew no bounds. This establishes him as a literary genius.

His writings also had a clear context. His works shed crucial light on many aspects of Indian history. For instance, 'Malvikagnimitra-am' depicts the story of Shunga king Agnimitra, who fell in love with a courtesan.

Abhigyan Shakuntalam - regarded as his seminal work, mixes history with creativity. It depicts the trials and tribulations faced by Shakuntala & King Dushyant.

Thus, Kalidasa was a literary genius. Sir William Jones had rightly described him as the 'Shakespeare of India'.

3. Tracing the evolution of Shaivism in India, discuss the various philosophical schools associated with it.

(150 words) 10 M.

The roots of Shaivism in India can be traced back to the Later Vedic Period. There is mention of Rudra (the destroyer) associated with Shiva. Even Sangam texts mention Murugan and Kartikeya (Shiva' son) as presiding deities.

The worship of Shiva as the chief lord got further impetus during Gupta period. As Shiva got established as a part of the Holy trinity (Brahma, Vishnu & Mahesh).

In early medieval period, Shaivism was popularized by the Nayanars also.

The various philoso-phical schools associated with Shaivism are -

1) Siddhas - Practice 'sadhna' and condemn idolatory. Are monotheists ascetics. Also called Yogi or Sadhu.

2) Nathpanthi - Adhere to teachings of Gorakhnath and Matsyendranath. Worship Shiva as 'Adinath'. Practice Hathayoga. Cover themselves with ashes.

3) Lingayat (aka Virshaivism) - Worship Shiva in the form of Linga. Set up by Basavanna. Reject Vedas & caste system.

4) Aghoris - worship Shiva manifested as Bhairava. Seek salvation through Sadhna in cremation grounds and removal of bonds of life (fear, greed, anger, etc.).

5) Dashnami Sanyasis - Disciples of Adishankaracharya (Advait Vedanta tradition).

6) Siddhars - Attain spiritual perfection through secret rasayanas to perfect their bodies. In Tamil Nadu.

Thus, Shaivism has a firmly entrenched tradition in India.

4. The approach and vision of Netaji Subhash Chandra Bose towards the Indian Freedom struggle differed in key aspects from the one adopted by the Congress mainstream. Discuss. (150 words) 10 M.

Netaji Subhash Chandra Bose was a fierce nationalist, whose defiant patriotism made him a great freedom fighter in Indian history.

While Netaji was a part of Congress for many years; his vision and approach towards the Freedom struggle differed from Congress in key aspects, such as-

1) He was a radical socialist while Congress was somewhat Centrist

2) Bose wanted complete independence from British rule, based on all out struggle, including use of force.

Congress was committed to Gandhian Satyagraha, based on a 'Struggle Truce struggle' strategy.

3) He was open to the idea of taking foreign assistance to achieve freedom, as seen in the formation of Indian National Association.

Congress was not too enthusiastic about this.

4) Bose advocated Economic planning, and heavy industrialization

While Gandhi Ji wanted a village-based economy; Congress (except for Pt. Nehru and few others) was ambiguous.

In conclusion, the ~~aim~~ end of both were same, their means were different

5. Despite various shortcomings, the Moderate phase of freedom struggle was key to giving birth to economic nationalism in India. Comment.

(150 words) 10M.

The early phase of Congress, starting from its establishment (1885) was mainly dominated by Moderates.

They had faith in British benevolence and espoused Constitutional agitation (prayers, petitions, etc). However, they were also criticized as-

SHORT COMINGS
- couldn't understand the true (exploitative) face of colonialism
- Failed to expand mass base of freedom struggle
- Failed to get any substantial reforms.

At the same time, there achievement was the development of Economic Critique of Colonialism. This gave birth to Economic Nationalism in India.

- Dadabhai Naoroji - Indians were getting poorer everyday. This poverty was not natural, but man-made, thus capable of being removed.

- Reason for Poverty - Drain of Wealth from India to Britain through Home Charges, etc.

- Foreign capital was a way to further strengthen India's subservience. So, industrialization should be based on Indian capital.

- British went for deliberate deindustrialization in India to benefit British manufacturers

- condemned high expenditure on army to suit British ambitions.

Thus, they argued that the essence of colonialism lay in transforming India to a supplier of raw materials, and market for British goods.

This undermined ideological hegemony of the British.

6. The huge strides India took towards modernisation under Lord Dalhousie were borne out of necessity rather their benevolence. Examine.

(150 words) 10M

The ideological justification provided by the British to colonize India lay in their idea of 'White Man's burden'; and their responsibility to 'Modernize' India.

However, the Economic critique of colonialism exposes this myth. While there were huge strides towards Modernization under ~~Under~~ Lord Dalhousie; they were borne out of Necessity rather than benevolence.

1) India's first railway line between Mumbai & Thane (1853) -

- Need to connect ports to hinterland
- Facilitate rapid movement of troops between various parts of India
- Facilitate transport of British imported goods throughout India.

2) First Telegraph line (Calcutta to Diamond Harbour) - 1851 and Postal Reforms -

- Need for swift communication with troops
- Easy communication between all braches of government.

3) Ganga Canal declared Open (1854)

- Boost agrarian output -
  i) Increase exports
  ii) Earn more revenue

4) Social Reforms like Religious Disabilities Act

- Removes barriers to conversion to Christainity

5) Public Works department in every province -

- Oversee expenditure of Foreign capital in India, and boost returns

6) Military reforms - Separate Gorkha regiment -

- Declining trust on Indian troops.

Thus, modernization was to suit British ambitions rather than Indian needs.

7. Indian women, cutting across identities, increasingly participated in the anti-colonial & democratic movements since 1930s. Discuss.

(150 words) 10M.

The success of Indian National Movement lied in its broad mass-base, of which women formed an integral part.

In the early phases, their participation was limited to the confines of domesticity and patriarchy. This barrier was broken by 1930s, as women cutting across identities participated in the struggle-

1) Sarojini Naidu - First Indian women to become President of Congress in 1925.

- Represented women at Round Table Conference in London.
- Led Dharsana Salt Mill raid (1930)

2) Rani Gandinliu - Led the Naga resistance against British and was arrested

- Also supported Civil Disobedience Movement.

3) Durgabai Deshmukh - organized salt satyagraha (1931) in Madras presidency

4) Sucheta Kriplani - coordinated activities of Quit India Movement on ground.

5) Aruna Asaf Ali - Led all under-ground activities of Quit India Movement.

- Hosted tricolour at Gowalia Tank to start the struggle.

6) Usha Mehta - Set up & operated an underground radio to help freedom fighters

7) Pritilata Waddedar - Conducted the Chittagong Armoury raid along with Surya Sen.

- Martyred during the raid.

8) Capt. Lakshmi Sahgal - Led the Rani Jhansi regiment of Indian National Army.

Thus, Indian women from all backgrounds contributed to the movement in all ways possible.

8. Bring out the differences in the views of Babasaheb Ambedkar & Mahatma Gandhi on the question of upliftment of dalits.

(150 words) 10M.

Dr. Ambedkar and Gandhi Ji were two foremost personalities, working for the upliftment of the downtrodden.

Despite having similar ends, there were fundamental differences between them on the question of upliftment of dalits. This includes-

1) Being a ~~staunch~~ follower of Hindu dharma, Gandhi Ji did not support the abolition of caste and varna. He considered untouchability as a moral and social problem.

Babasaheb believed that Brahminism and Hinduism were just the same. He called for annhilation of caste.

2) Gandhi Ji encouraged people of all castes to fight for the rights of dalits.

Dr. Ambedkar believed that upper castes can not fight

for the Dalit cause. Thus, only dalits will have to fight for their rights.

3) Gandhi Ji saw villages as India's backbone, and wanted autonomy for them.

Babasaheb saw villages as dens of ignorance, perpetuating exploitation of dalits

4) Gandhi Ji's general approach to protest was through extra-constitutional mass struggle.

Babasaheb believed that a ~~fair~~ just Constitution can lead to upliftment of dalits.

5) Gandhi Ji believed in political unity of all. Babasaheb wanted separate electorates for dalits.

Thus, despite similar ends, both had different means.

9. North-east India ~~through~~ threw up constant challenges to the British hegemony in India. Discuss in the context of anti-colonial struggles in the region.

(150 words) 10M.

British government in India wanted to establish Scientific frontiers in India. This, along with the search for new markets and cheap labour; led them to attack North-East India.

This, however, was problematic for the British as they had to face constant challenges. This includes-

1) Ahom Revolt (1828)

Leaders- Gomdhar Konwar, Dhanjoy Bonghain, Jairam Phukan

Reasons- British didnot withdraw from Assam after First Burma war.

British had to follow a conciliatory approach, and restored a part of the Empire to the king.

2) Singhpo Rebellion (1843)

Leader- Nirang Phidu

Reason- Against British interference.

3) Khasi uprising

Leader - Tirath Singh

Reason - EIC wanted to build a road linking Sylhet with Bramhaputra valley and brought Bengali labour. Outsider's presence caused resentment

- Khasis, Garo, Kampti and Singhpos took part

4) Kuki Revolt (1917)

For independence from British

5) Zeliangrong Movement

Leader - Jadonang

Coincided with Non-cooperation Movement

6) Rani Gaidinilu's Naga Struggle

Against British oppression and for Naga self determination.

7) Tripura Revolt (1942-43)

Leader - Ratnamani (Reang tribe)

Thus, North East India saw a series of revolts against interference and oppression by the outsiders.

10. Give an account of developments in India and across the world that influenced the Indian trade union movement. (150 words) 10 M.

The growth of industries in India under British rule gradually led to the formations of trade unions, and growth in labour consciousness, by 1920s.

The Indian Trade Union Movement was influenced by various developments from-

A. WORLD -

1) October revolution (1917) in Russia showed the significance of working-class solidarity.

2) Formation of Comintern and its call for proletarial internationalism ('workers of the world, unite!')

3) Establishment of International Labour Organisation under the aegis of League of Nations.

4) Social democratic ideas of the British Labour Party.

B. INDIA

1) Economic crisis after World War 1
   a) Food shortage ~~and~~
   b) Rise in general price levels
   c) Decrease in wages
   d) Conscription, Indentured labour

2) Gandhi Ji's emphasis on making freedom struggle mass-based by involving various sections.

3) Formation of All India Trade union congress (1920), and leaders like Tilak, Pt. Nehru, Sarojini Naidu.

4) Exploitative legislations of the British, fueled discontent -
   a) Public Safety Ordinances
   b) Trade Disputes Act.

Thus, Indian Trade union movement was a cumulative result of various developments, both home and abroad.

11. Securing from the creation of world's first dock, India's maritime history is simply astonishing. Elucidate.

(250 words) 15M.

Being situated at the heart of Indian ocean, and surrounded by water on three sides; India has a unique maritime advantage.

Moreover, Indians, over centuries, have successfully harnessed this position; and India's maritime history is simply astonishing.

1) Indus Valley civilization -

a) People in IVC knew ship-building and traded with Mesopotamia.

b) A dry dockyard has been found at Lothal.

2) Vedic Period

There are references to Lord Varuna, God of seas and upholder of the natural order.

3) Mauryan Empire

a) First recorded instance of navy in the world is from Magadha.

b) A separate division of Chandragupta Maurya's army was dedicated to navy

c) Arthashastra mentions a department of waterways, various types of boats, etc.

4) Gupta Period

a) Trade and commerce with Byzantine empire, Romans, etc.

b) Fa-Hien records contain the advanced art of oceanic navigation

c) Tamralipti was an important port of Guptas

5) Satavahanas

a) Controlled the Eastern coasts

b) Their coins had inscription of ships

6) Chola, Chera, Pandyas

a) Being coastal kingdoms, all had trade links with foreign kingdoms

b) Cheras used knowledge of monsoon winds to sail between Tyndis and Muziri ports in India & ports of Greece and Arabia.

c) Cholas fought with and defeated Sri Vijaya empire, Cambodians, etc.

- Achieved dominance on seas
- Bay of Bengal was called 'Chola Lake'

7) Mugal Empire

a) While it was primarily a Continental Empire, Mughals had links with English as well as Portuguese.

b) Surat was a major port

8) Marathas

Had a navy with 500 ships.

Thus, Indians have a splendid maritime record.

12. Highlighting the unique features of Vesara style, discuss how it symbolizes confluence of Dravida & Nagara temple architectures.

(250 words) 10M

Temples have been an important part of socio-political life in India. India thus has a strong temple building tradition, broadly as Nagara architecture in North and Dravida in Southern India.

From c. 700 CE, there was a development of a Hybrid style, under the patronage of Chalukya rules; called the Vesara style. It was further patronised by Hoysalas and Rashtrakutas.

Example- Ladkhan temple (Aihole)
Virupaksha temple (Pattadakkal).

The UNIQUE FEATURES of the Vesara temples include-

1) Stellate (star-shaped) ground plan
2) Open (rather than covered) circum-ambulatory passages (pradakshinpatha)
3) Intricate carvings on pillars,

doorways and ceilings

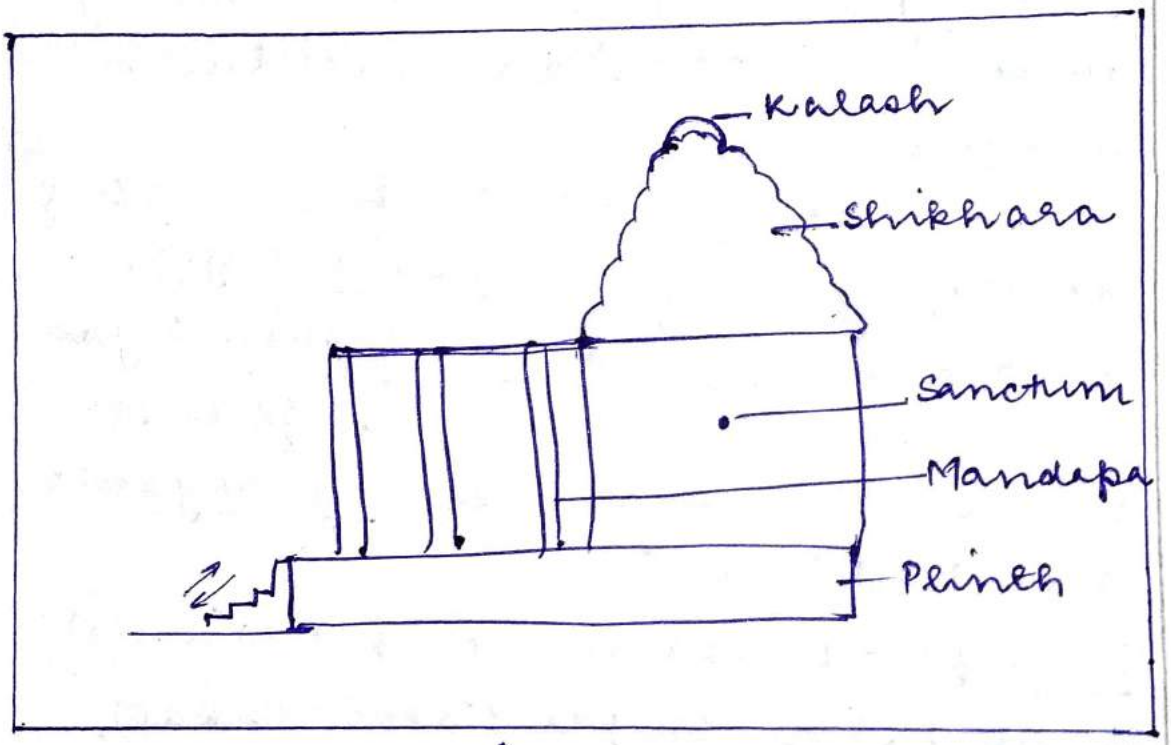
4) A raised temple platform, called Jagati.

5) Zig-zag patterns of walls and stairs

6) NO use of mortar, to allow more ventilation and light.

7) Presence of miniature decorative pillars

8) Multiple entrances to the temple.



Nesera Temple

At the same time, Nesera style symbolizes a CONFLUENCE of Nagara and Dravida styles. This can be seen in -

a) Nagara Influence -

- Presence of a curvilinear shikhara
- Panchayatan style - one main shrine surrounded by four subsidiary shrines
- Plan of vestibule joining the sanctum to mandapa resembles Odishan temples.

b) Dravida Influence -

- Terraced shikhara and design of Vimana
- Presence of gopuram (entrance)
- Presence of Theppam (water tank).

Thus, Vesara temple architecture is a hybrid of Nagara & Dravida styles.

13. Given its inward-looking approach, the Indian school of philosophies still remains relevant in the 21st century. Analyse.

In India, philosophy arose as an enquiry into the mystery of life and existence. Gradually, there developed six orthodox schools of Indian philosophies, as well as various unorthodox schools. These are -

1) Orthodox -

Shada-Darshana
- Sankhya - Founded by Kapil Muni
- Yoga - Origin in Yogasutra by Patanjali
- Nyay - Founded by Rishi Gautama
- Vaisheshika - by Kanad Rishi
- Mimansa - By Jamini Rishi
- Vedanta

2) Unorthodox -

Heterodox Schools
- Buddhism
- Lokayata (Charvaka)
- Jainism

The Indian school of philosophies is usually criticized on the grounds that it has an inward-looking approach. It makes the individual as subservient to the atman (soul). This is in contrast to western philosophy - that is highly centred on the individual and her/his reason.

However, the Indian school of philosophies still remains RELEVANT in the 21st century. This is because -

1) Pragmatism - Philosophies like charvaka give a practical approach of living life, as it is; instead of aspiring towards some unknown, higher self.

2) Scientific - Vaisheshika provides realism and objectivity in one's approach.

3) Empiricism - Nyaya stresses on logical analytical tools of hearing, inference and analogy.

- It also promotes systematic reasoning and thinking.

4) Ethics - Laws of karma, etc. encourage living as per ethical standards, and doing good deeds.

5) Tolerance - Presence of many even contrasting philosophies together reflects a spirit of acceptance & accomodation of different view-points.

Thus, despite certain flaws, Indian school of philosophy is still relevant.

14. The roots of Indian classical music date back to ancient India. Elucidate. Also, distinguish between Hindustani and carnatic music.
(250 words) 15M.

Music in India is an ancient art. It is believed that sage Narada introduced music to the Universe. The universe is said to emit an eternal sound, called Naad Bramha.

The roots of Indian classical Music can be traced back to the Sama Veda. It contains Shlokas that were in the form of music. Its upveda is Gandharvaveda - the Science of Music.

Music was first theorized in Bharata Muni's Natyashastra. It contains around six chapters on music.

Matanga's 'Brihaddesi' (c.900-1000 CE) named Ragas for the first time, and described them. Further, Sarangadeva's Sangeet Ratnakar contained 264 ragas.

This period also led to

the development of various Music instruments like Pakhawaj, Veena, flutes, etc.

classical music got patronage from various ancient kings also. Gupta ruler Samudragupta was himself an accomplished Veena and flute player.

Indian classical Music is divided into two categories. These are-

Hindustani Music	Carnatic Music
In North India	In South India.
Persian in origin	Founder - Purandar Das
It has adopted a scale of Shuddha Swara Saptak - an octave of natural notes.	Played in the traditional octave
Focus more on the music structure and possibilities of impronization	Focus more on the lyric ~~nature~~ quality of the musical piece.

Accompanied by instruments like Pakhawaj, Sarangi.	Always accompan-ied by the Mridangam
Based on ragas	Based on kriti
Has various sub-styles (Gharanas)	Only one specific style of singing.
Elaboration is from note to note	Phrase to phrase elaboration
More importance to vocals.	Equal importance to vocals & instrume-nts.
Famous Singers - Amir Khusrau, Tansen	Famous Personalities Tyagaraja, Shyama Shastri

Thus, classical music has a deep-rooted tradition in India.

15) The socio-religious reform movements had a deep influence on cultural as well as national consciousness of Indians in the 19th century. Analyze. (250 words) 15M.

The ideological justification for British colonialism was based on 'White Man's burden' - the moral duty of the British to reform a decadent society like India.

To counter this narrative, and to rid India of various societal ills, 19th century witnessed various socio-religious reform movements.

These movements had a deep influence on cultural as well as national consciousness of Indians in the 19th century. This is reflected in -

1) Emancipation of Women -

- Raja Ram Mohan Roy worked to ban sati and other practices derogatory to women.
- Vidyasagar campaigned for women's education
- Pandita Ramabai emphasized women's economic self-dependence.

2) Social divisions and Prejudices -

- Jyotiba Phule, Periyar and others worked against caste rigidities
- Focus on increasing access of dalits to basic amenities, education, etc.
- Emphasis on religious unity and harmony.

3) Rediscovery of Past

- Works of Swami Vivekananda, etc. stressed upon a glorious Indian past and rich heritage
- Provided a psychological boost to Indians and broke the myth of British superiority.

4) Education

- Works of Sir Syed Ahmed Khan, Dayanand Saraswati promoted modern Scientific education.

5) Nationalism

- Promoted the concept of Service to the nation, etc. through Gokhale's 'Servant of India Society', etc.

At the same time, there were some Negative Impacts as well, like -

1) Revivalism

- Over-emphasis on purity of religion, etc.
- Had communal overtones like Shuddhi Movement.

2) Elitism

- Mostly limited to upper classes
- Less ~~un~~practical impact on the downtrodden

3) Mysticism

- Some movements focused too much on reverence to a particular person, bordering on hero-worship and mysticism.

Despite these issues, the socio-religious reform movements fundamentally altered the socio-cultural scenario of India.

16. Wored war 1 brought in socio-economic dislocation for nearly all sections of the Indian population, paving way for the necessary social mobilization for an impending mass upsurge. Elaborate.

(250 words) 15 M.

The First Wored War (1914-18) had widespread consequences all across the wored. India too bore the brunt of various war-time hardships. Nearly all sections of the Indian population faced socio-economic dislocation-

1) Inflation -
- Rise in general prices for various goods
- Increase in taxes and introduction of newer taxes like income tax.

2) Crop failure - acute food shortage and rising food prices

3) Conscription - Villages were forced to send men abroad to fight for Britain

4) Trade suffered -
- Demand for Indian exports reduced
- Fluctuating rupee - sterling

exchange rate.

- collapse of global prices due to Great depression.

5) Industry -

- Forced to produce goods required by British in war
- Wages for workers declined despite increased cost of living

6) Unemployment -

- Rising literacy rates among youth but lack of economic opportunities
- Unemployment and under-employment

This paved way for the necessary social mobilization for an impending mass upsurge.

- War-time miseries revealed the true (exploitative) face of colonial rule.
- Huge discontent among all sections - workers, students, peasants, women.
- Various localized protests were organized like Kisan Sabha Movement.
- Formation of Home rule league increased political awareness

among people.

- Gandhi Ji recognized the spirit of this atmosphere and called upon all sections to unite against British rule.

- This successfully culminated in the Non-Cooperation Movement.

Thus, First world war accelerated anti-British sentiments in India.

17. The end of the Civil Disobedience Movement resulted in serious dissension within congress, in the same way, as it happened after the withdrawl of Non-cooperation movement. Comment.

(250 words) 15M

Non-cooperation Movement (NCM) and Civil Disobedience Movement (CDM) were two landmark movements in the History of Indian Freedom struggle.

NCM (1920-22) was triggered by Punjab wrongs and Khilafat wrongs. CDM was triggered by ban on salt manufacture and demand of Purna Swaraj.

In the aftermath of the Chauri-Chaura incident (Feb, 1922), Gandhi Ji called off the NCM repulsed by the violence.

This withdrawl resulted in dissensions within congress as well -

a) Withdrawl was seen as a pro-Zamindari class by many left-leaning leaders.

b) Since Gandhi Ji was arrested, there was conflict over future course -

i) Pro-Changers like CR Das and Motilal Nehru advocated council entry and formed the Swaraj party

ii) No Changers like Sardar Patel and Rajendra Prasad advocated doing constructive work.

Similarly, CDM was withdrawn after the Gandhi-Irwin pact, and British invited Gandhi Ji to participate in Round Table conferences in London.

This also created dissensions within the congress-

1) Pt. Nehru and Netaji Bose did not agree with the 'Struggle-Truce-Struggle' Stratégy.

2) A section of leaders including Asaf Ali, MA Ansari and Bhulabhai Desai advocated a return to legislative councils while Gandhi Ji advocated constructive work.

He resigned from congress in 1934.

3) Gandhi Ji's inability to get the British to waive off death sentences of Bhagat Singh, Rajguru and Sukhdev alienated the radical fanction.

4) Leftists criticized both Council Entry and constructive work and favoured resumption of mass struggle.

Congress was always an umbrella movement. It comprised of many different view-points and ideologies. Thus, the dissensions were natural.

18. The Indian Press not only fought severe censorship imposed during the colonial rule, but also played a critical role in India's struggle for independence - Discuss.

(250 words) 15M

Generally referred to as the Fourth Estate, the press played a critical role in the Indian Freedom Struggle.

The British government, recognising this potential, enacted a series of measures and imposed a strict censorship on the Press. This includes -

1) Licensing Regulation (1823)

Starting/using press without a license is a penal offence

2) Vernacular Press Act (1878)

Confiscation of printing press, paper, etc. if government believed that any vernacular paper was publishing 'seditious' material

- No right to appeal.

3) Indian Press Act (1910)

Revived the worst features of

Vernacular Press Act.

Despite these restrictions, Indian press used creative ways to carry on their purpose -

- Amrita Bazar Patrika switched from Bengali to English overnight to evade Vernacular Press Act.

- ~~Se~~ Criticism of government used to be prefaced with sentiments of loyalty to government, to evade laws.

Therefore, the press coud play a critical role in Indian National Movement, as -

1) Press was the chief instrument of politicization

- Political propaganda against colonial rule
- Formation and propagation of nationalist ideology.

2) The resolutions and proceedings of of Congress were propagated through newspapers.

- Nearly one-thirds of the 72 delegates who founded Congress, were journalists.

3) Press played the institutional role of opposition to the government.

- Sharp scrutiny and criticism of all acts and policies.

4) Influence of press reached beyond its literate readers in cities.

- Libraries were organized in villages around a single newspaper
- Reading or discussing newspaper became a form of political participation.

Thus, in spite of various restrictions, Indian press played the role of a mighty nationalizer.

19. The activities of extremists and the Home Rule Movement is believed to have set the stage for a new era of freedom struggle under the leadership of Gandhi Ji. Comment.

(250 words) 15M.

The first few decades after the establishment of Indian National Congress (INC) was dominated by the 'Moderates'. They believed in British benevolence and constitutional struggle.

Their failure to get any substantial reforms led to the rise of extremists, more radical in approach by extra-constitutional means.

Simultaneously, Home Rule leagues were formed to popularize the idea of independence among masses, and expand the base of freedom struggle.

Their activities have set the stage for a new era of freedom struggle under the leadership of Gandhi Ji.

1) Extremist revealed the true (exploitative) face ~~and~~ of colonial rule and broke the myth of British benevolence for Indians.

2) They advocated mass struggle and self-reliance, as seen in the Swadeshi Movement.

3) Home rule leage built a strong network of nationalist volunteers across India.

- Their branches reached various corners of the country.

4) They lent a sense of urgency to Indian National Movement

5) Both the Extremists and Home rule leagues stressed on increasing participation of all sections of Indians in the struggle

- Channelized the energy of youth for struggle.
- A generation of ardent nationalists was created.

Gandhian politics of non-violence, mass struggle built upon these activities only. Gandhi Ji capitalized upon youth energy and the organizatio-nal network built earlier, as seen in the Rowlatt Satyagraha.

Thus, Gandhian era of freedom struggle was also based

20. Highlighting the circumstances that favoured its growth, throw light on the development of leftist movements in India.

(250 words) 15M.

The history of leftist Movement in India runs deep into the very heart of freedom struggle. The circumstances that favoured its growth include-

1) The success of Russian Revolution was seen as a defeat of western imperialism. This-

- Gave legitimacy and popularity to Marxist ideas all across the world.
- Showed that a united people can defeat even the mightiest empires

2) Post-World War I socio-economic hardships created huge discontent.

- Inflation & Food shortages
- Decline in workers' wages.

3) Rising unemployment and underemployment despite rising literacy

- Turned youth towards leftism.

4) withdrawal of Non-cooperation movement left a political vaccum

- Gave space to Communist Party formed by MN Roy, Abani Mukherjee, etc.

  i) Took anti-British stance and Kanpur and Meerut conspiracy trials - increased sympathy for communists

  ii) Declared illegal in 1934, and attacked British as well as INC left and right wing. This pushed them away from mainstream politics.

  iii) Support to congress Socialist Party later on

  iv) In 1942, before Cabinet Mission Plan, they proposed a multi-national India with 16 ~~states~~ nations. But, they had lost popularity by then.

5) Presence of leaders with leftist inclinations within Congress.
Eg. Netaji SC Bose, Pt. Nehru, etc.

- 1934 - Congress Socialist Party was formed within the congress
- i) Condemned Government of India Act (1935) and criticised

congress for accepting offices in provinces in 1937.

ii) Took a leading part in Quit India movement.

iii) Favoured Hindu-Muslim unity and described partition as an act of surrender by Congress

- Bose also formed Forward Bloc within Congress later on.

Thus, left politics in India gradually evolved against the backdrop of freedom struggle.

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1. Despite a vast coastline and a number of waterways, why has India not been able to achieve its potential in bringing a significant modal shift from rail and road to waterways?

India is naturally endowed with a vast coastline of 7516.6 km as well as 7 major rivers. This provides ample scope for ~~a~~ robust ~~ne~~ water transportation. However, India has not yet achieved its potential in water transports. The REASONS include -

a) Geographical →
- Uneven distribution (North is land-locked and rivers are not equally distributed)
- Seasonal nature of many rivers - Flow is very less in dry seasons
- Indian rivers have high volumes of silt, this makes transportation difficult.
- High dredging can damage river beds and aquifers.

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b) Infrastructural -

- very slow development of port infra.
- Inadequate linkages with the hinterlands

c) Other Issues.

- Do not offer door-to-door connectivity
- Lesser transport speed
- Various hurdles in river-interlinking projects
- Inadequate Funding.

Consequently, railways and roads are prefered for transport due to ADVANTAGES like

a) Dense networks
b) Faster transport
c) Door-to-door connectivity

~~d)~~ At the same time, to develop waterways, government has taken many steps. This includes -

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Initiatives

- Jal Marg Vikas Project
  - For capacity augmentation of National waterways
- Sagarmala Project
  - To develop coastal shipping & reduce logistics cost
- Major Port Authority Bill - to revamp ports.

This will not only ~~red~~ boost logistics, but also help India to leverage its Blue Economy capacity.

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2. The move to establish a National Bank for Financing Infra and Development (NBFID), to reverse the drag on India's growth potential will have its own set of challenges. Discuss.

Following the Covid-19 Pandemic and an economic slowdown, capital availability has taken a hit as GDP growth stagnates and NPAs rise. Thus, NABFID is set up as a Development Finance Institution to support development of long-term non-recourse infrastructure spending.

Benefits
- provides long-term finance where banks can not.
- Tax benefits & concessions related to it will have positive impact on bond market
- provides technical and managerial expertise to projects.

However, NABFID will have its own set of CHALLENGES. This includes -

Challenges
- Taking credit decisions to avoid NPAs (underwriting weak loans, corruption, etc)
- More number of DFIs, counter-productive competition & poor resource allocation
- Need for trust between private and public sector
- Need to compete with private sector to attract & retain talent despite average remuneration
- Developing a comprehensive strategy to attain socio-economic objectives.

These challenges need to be addressed through standardized regulations, performance analysis, etc.

3. Highlighting the issues related to the current fertilizer subsidy regime in India, discuss the need for reforms in this context.

Being an agriculture-based economy, India is the 3rd-largest consumer of fertilizers globally. At the same time, the union government bears fertilizer subsidy for the farmers.

The fertilizer-subsidy regime in India has various ISSUES such as-

- India depends highly on imports for fertilizers. This results in higher costs.
- While the ideal NPK ratio is 4:2:1, it is used in 8.2:3.2:1 in India due to -
  - Lack of awareness among farmers
  - cheaper urea.

  This causes soil degradation & groundwater pollution
- Issues of payment-delays to urea companies.

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- Illegal diversion of urea for non-agricultural purposes.
- No-denial policy → Anybody (even non-farmers) can purchase any quantity of subsidized fertilizer using point of sale Machines.

IMPACT
- Decreasing fertilizer response ratio
- High soil salinity
- Toxicity in food-chain
- Groundwater pollution due to leaching

Thus, various REFORMS are needed, such as -

1) Sharad Pawar Committee recommended inclusion of urea under Nutrient-Based Subsidy (NBS).

2) Nilekeni Task Force - paying all fertilizer subsidy directly to farmers via DBT.

3) Reasonable cap on total number of subsidised fertilizer bags any one can buy during a cropping season.

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4) Popularizing Soil Health Card scheme for balanced fertilizer usage.

5) Increasing Micro-nutrients (Zinc, Boron, Iron, etc.) based organic fertilizers.

This will rationalize the fertilizer-subsidy bill as well as make farming more sustainable.

4. Identifying the need for a climate resilient agriculture in India, discuss how it can be achieved.

With rising temperatures, extreme weather conditions, etc., climate change is becoming a harsh reality. In this context, climate resilient Agriculture is the need of the hour. This is because -

- Declining water resources -
  - climate change is making monsoon erratic while ~52% agriculture in India is rainfed.
  - With higher temperature, water table is depleting faster.

- Harsh weather -
  - Sudden rains, floods and hail storms are destroying crops
  - Droughts are becoming frequent

- Lower Productivity - As per studies, a 1°C increase can reduce yields of wheat, soyabean, mustard, groundnut, potato, etc. by 3-7 %
  - More heat also causes animal distress, affects livestock.

Thus, Since around 50% of Indians are still engaged in farming and farm insurance cover remains low, agriculture needs to be climate resilient. This can be ACHIEVED through -

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1) Technology Usage -
- More accurate weather prediction
  E.g. NADAMS
- More information dissemination
  Eg. m-Kisan App

2) Improving irrigation efficiency
- Promoting Micro-irrigation
- Cover-crop method

3) Tolerant crops
- Millets are photo-insensitive and can survive on rough terrain and less water
- Need to rebrand coarser grains as 'nutri-cereals'.

4) Tolerant livestock by focus on indigenous breeds.

5) Reducing GHG emission from agriculture by -
- Zero Budget Natural Farming
- Zero tillage farming

6) Reduce post-harvest losses -
- More integrated value chain
- Accessible Marketplaces.

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Govt. Steps
- PM Krishi Sinchayi Yojana
- Paramparagat Krishi Vikas Yojana
- National Mission for Sustainable Agriculture
- Soil Health Card, Neem-coated urea
- PM-KUSUM.

This will ensure the viability of Indian agriculture and maintain Food security as well.

5. Mega Food Parks were considered to be a gamechanger for the food processing sector in India, but their progress remains stunted. Discuss.

Food Processing Industry in India constitutes around 10% of our agricultural GDP. To further leverage its potential, Mega Food Park (MFP) initiative was launched.

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MFP was considered to be a game-changer for food-processing sector. This was because-

MFP →
- Brings Farmers, Processors and retailers together
- Maximizes value-addition to crops
- Minimize ~~food~~ crop (esp. perishable) wastage by quicker processing
- Create employment in rural areas.

However, the progress of MFP remains stunted. This is because →

- Infrastructural Issues-
  - a) Corruption & leakages in fund allotment
  - b) Delays in project completion
  - c) Cost over-runs.
- Funding Issues-
  - a) Difficulty to access loans due to newness of the concept
  - b) Lackluster private sector

investment.

3) Regulatory Issues -

- Very explicit and stringent regulations
  - This deters MNCs like Pepsico
- Lead investors are initially required to partner with 3-4 major players.
  - Corporates reluctant to do so.
- At least 1 investor is required to have a background in Food Processing and 50 acres land.
  - Land acquisition issues.
- Delays in statutory clearances by state governments

There is thus a need to develop a holistic strategy that takes into account localized problems, and offers unique solutions.

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6. Give an account of the challenges associated with rapidly increasing biomedical waste in India. Also, state the key features of Bio-Medical Waste Management (Amendment) Rules, 2018.

Biomedical waste comprises of human and anatomical waste as well as treatment apparatus used in healthcare facilities. According to CPCB, India generates about 610 MT/day bio-medical waste, this is fast increasing due to the ongoing Covid-19 pandemic. The CHALLENGES associated with this include -

1) Health risk to sanitation workers and garbage collectors due to -
   a) Lack of protective gear
2) Lack of waste segregation - affects the efficiency of incinerators.
3) Overburdened waste disposal capacity
4) Guidelines about disposal are not followed properly.
5) Lack of awareness among people

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In this context, Bio Medical Waste Management (Amendment) Rules 2018 are put in place.

Key FEATURES

- Pre-treatment of waste by disinfection, sterilization etc
- Phasing out chlorinated plastic bags, gloves, etc.
- Regular training and immunization of workers
- Safe, ventilated location to store segregated waste within premises
- Record maintenance & monitoring of activities
- Establish GPS and bar-coding facility at common waste treatment facility.

Covid-19 has put a huge strain on an already fractured bio-medical waste disposal system in India. Thus, urgent steps are required to tackle this challenge.

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7. What do you understand by impact based forecasting in disaster management? How can such forecasting strengthen disaster management preparedness?

Impact based forecasting is a technology developed by IMD. It is designed to forecast the expected impact as a result of expected weather conditions.

The Indian Meteorological department (IMD) has recently launched a dynamic impact-based warning system for cyclones. Hazard and vulnerability are taken into consideration for this forecast approach.

Such forecasting can STRENGTHEN disaster management preparedness as well.

1) Better understanding of risk -
   a) Location - specific tailored warning
   b) Factors in local infrastructure, population density, etc.
   c) In-depth risk profile.

2) Proactive Planning - State can generate various impact scenarios based on different disaster effects.

3) Effective Response - 'Pre-event' scenario can help authorities to closely monitor impact of impending disasters & take real-time decisions.

4) Better coordination - All agencies can collect and use cartographic, geological and hydrological data better.

5) Encourages community participation

Thus, India will be better prepared in dealing with disasters

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8. Lower Earth Orbit is becoming increasingly crowded as countries race to launch satellites into space. Highlighting the associated issues, discuss international efforts taken in this regard.

Lower Earth Orbit lies at a range of 200 to 2000 km around Earth. It contains the Hubble Space Telescope, International Space Station as well as many other satellites.

As countries race to launch satellites into space, there is an emerging risk of more congestion in the Lower Earth Orbit (LEO).

The ISSUES associated to this include-

1) High amount of space debris
   - This can strike and damage our assets in space.

2) Increased crowding as well as relatively higher speeds of satellites (in LEO) can lead to collision among satellites.

3) This ~~it~~ can also pose a safety risk to people and

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property in space, and on Earth.

- It can affect the working of satellites, thus disrupting communication, navigation, etc.

Therefore, there have been certain INTERNATIONAL EFFORTS in this regard like -

1) Clear Space Mission - To be launched by European Space Agency in 2025 in the form of a robot, 'Chaser'.

2) Remove DEBRIS Mission - A satellite project by University of Surrey to demonstrate various debris removal tech. like Net capture, Harpoon capture, etc.

3) Deorbit Mission - By ESA to capture and safely burn up ESA-own derelict satellites in LEO.

4) Japan's Cargo Ship - It will use a 700 m long tether to remove space debris by slowing down its movement and eventually pulling it out.

5) MOTR (Multi Object Tracking Radar) - By ISRO and Physical Research Laboratory.

These slips are much-needed in the present scenario. This field requires more research and development in order to safely continue our space-related projects.

9. Enumerating the existing measures to counter bio-terrorism in India, highlight the need for a bio-terrorism law.

Bioterrorism refers to the intentional release of biological agents or toxins for the purpose of harming or killing humans, animals or plants.

Few incidents in the past have raised the risk of bioweapons in India, such as the outbreak of scrub typhus during Indo-Pak war (1965) in Assam & West Bengal.

To counter bio-terrorism in India, certain MEASURES that exist are-

1) A specialized force is set up under Ministry of Home Affairs to deal with chemical, biological, radiologic-al and nuclear attacks.
- This is called the NDRF (National Disaster Response Force)

2) India has also ratified the Biological and Toxin Weapons

Convention (1972).

- It prohibits signatory countries to develop, stockpile or acquire microbial / biological agents.
- India pledged to abide by it in 2015.

3) Special Chemicals, Organisms, Materials, Equipment & Technology (SCOMET) Guidelines provides-

- Stringent export product control list for dual use items.

At the same time, India lacks a comprehensive law to deal with bio-terrorism in India. There is a HEED for such law because-

1) India shares borders with countries like Pakistan & China, that have a history of hostilities (both overt and covert) with us.

2) With advancements in biotech, access to potential bioweapons for both state and Non-State Actors increases.

- This makes India vulnerable.

3) Recent outbreaks of Nipah virus, Covid-19 virus, etc. ~~with~~ had devastating impact.

- They are potential bioweapons
- India's initial response exposed the gaps in our approach
- Thus, a holistic strategy is required.

Therefore, a comprehensive bio-terrorism law is the need of the hour in India.

10. Discuss the potential of 'Integrated Law Enforcement Centres' and 'Smart Walls' on India's border areas to address the prevailing security challenges.

India has a total border length of 15,106.7 km. It is marred with several issues like cross-border insurgency, illegal good smuggling, human trafficking, etc.

Among the various efforts being made to tackle these issues, we have -

A. Integrated Law Enforcement centres

- Recommended by BPRD (Bureau of Police Research and Dev). to have ILEC on all Indian borders.
- work as Integrated Check Posts with the mandate to register, investigate & dispose of all types of cross-border crimes.

Potential Significance

- Optimum resource utilized as different agencies pool & mutually share resources
- Synergy of Efforts - eg. HCB's expertise, IB/RAW's surveillance and BSF's manpower
- Enhanced Efficiency - All aspects of crime dealt with at a single place → speedy disposal
- No need of separate infrastructure for every unit
- Structure & Functions are 'Federal in Nature, Unitary in Spirit' - in accordance with our Constitution

B. Smart Walls for Borders -

- A collection of discrete technologies that work together to prevent cross-border smuggling, illegal entry, etc.
- Includes drones, scanners, sensors, etc
- Recently deployed at USA - Mexico border.

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Potential Benefits

- Better DEPLOYMENT than physical walls due to rugged, ill-defined border terrains
- Sharper surveillance due to use of technology like sensors etc.

Although Smart walls are not very feasible for longer borders, they can be very helpful to deploy in shorter critical stretches.

Thus, ILEC and Smart Walls will be a great addition to India's security architecture.

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11. Farm loan waivers are neither adequate nor recommended for promoting sustained agricultural growth. Analyze.

According to NSO reports, over 50% of agricultural households in India are in debt. To cope with this, Farm loan waivers (FLW) are often used. However, they are neither adequate nor recommended because -

- It covers only about 1/3rd of small and marginal farmers who have access to bank credit.
- As RBI stated, it undermines honest credit culture.
- According to Public Accounts committee, it can lead to corruption inclusion and exclusion errors, unused funds, etc
- After every FLW, banks are more reluctant to give agricultural credit. This reduces access of farmers to credit.

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- Increases future NPAs & crowding out of private investments.
- Increases fiscal pressure on government & fiscal targets are breached.
- FLW can be politicized - linked to populism.

FLW are no panacea for agricultural distress.

Solutions
- Extend irrigation facilities to rain-fed areas
- Bring market reforms
- Focus on cold storage infrastructure to curb distress sale & losses
- Promote more effective input usage
- Better insurance coverage
- Growth of allied sector.

Thus, as Swaminathan Commission suggested, farm loan waivers should only be used in extreme situations - More

focus should be on structural & institutional reforms.

12. A number of initiatives in recent years have focused on the MSME Sector. Why is there a need to focus on this sector? Also, identify the measures taken by government and further scope of action.

MSME [as introduced via the Micro, Small & Medium Enterprises Development (MSMED) Act 2006] are entities engaged in manufacture, processing or preservation of commodities subject to investment limits.

MSME play a significant role in the Indian economy. This can be seen as -

Significance

- contributes ~45% of overall Indian exports
- 2nd largest employment generator after agriculture
- Promotes innovation
- Contributes 6-7% to Manufacturing GDP
- Fosters inclusive growth as ~54% MSME in rural areas

At the same time, they face many PROBLEMS, like -

Problems

- Non-availability of skilled labour at affordable cost
- High competition from cheaper imports
- Ineffective marketing strategy
- Inadequate infrastructure
- Technological backwarness
- Limited capacity (dwarf firms)
- Lesser access to formal credit due to lack of collateral (no hard assets), lack of financial credibility, etc.

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So, despite crucial significance, MSME suffer from many issues. Thus, government initiatives are needed for MSMEs. This includes-

Measures

- Credit linked capital subsidy scheme for tech. upgradation
- National Manufacturing Competitiveness Prog. to enhance global competitiveness
- ASPIRE - Scheme for Promoting Rural Industry & Entrepreneur-ship
- PM Employment Generation Prog - Credit linked subsidy
- MSE - Cluster Development Prog to enhance capacity and productivity.
- Various online Portals-
  - Udyami Mitra (by SIDBI) to increase credit access
  - Samadhan - Payment related grievance redressal
  - Sambandh - Monitors public procurement from MSMEs.

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Further Scope of Action includes.

Way Forward

- Integrate MSME into Global Value Chains
- Inculcate entrepreneurial spirit among youngsters
- Tie up with FinTech firms for easier funding
- Take steps to tackle the impact of covid-19
  - Soft loans at Minimal interest rates
  - Large economic package to boost demand as well as investments.

Thus, MSME forms the core of Indian economy. It's capacity needs to be augmented by making it globally competitive & more resilient to shocks.

13. Skilling the Indian population faces a 3E challenge - Education, Employment and Employability. Discuss. Also suggest interventions required to effectively manage the challenge.

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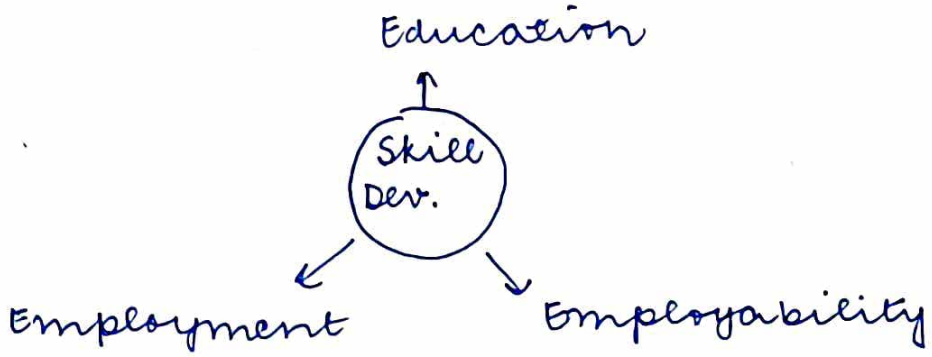
World Economic Forum's 'Future of Jobs' report has estimated that around 50% of Indian workforce needs reskilling by 2022. This highlights the crucial need of skill development in India.

However, skill development in India faces a 3E Challenge -



~~a) EDUCATION~~

a)

Education
- Lack of physical infrastructure
- lack of trained teachers
- Inadequate focus on vocational training
- High school dropout rates
- Caste and gender biases
- Lack of adequate funds.

b)

Employment
- High rates of unemployment
- Jobless growth in India
- Global economic slow-down
- Dominance of informal economy

c) **Employability**

- NASSCOM estimates → only 1 in 4 engineering graduates are employable
- Low industry interface ⇒ Mismatch ~~b/w~~ between demand & supply of skills
- No backward or forward linkages in training.

eg. skill training in tourism involves aspects of 1 district alone - no broader coverage.

To solve such issues, many steps have been taken by government such as -

Initiatives
- Skill India - Train at least 300 Million skilled people by 2022.
- Skill Development Mission - to provide sound institutional framework
- PM Kaushal Vikas Yojana
  Skilling 1 crore people by 2022.

Further INTERVENTION should include steps such as -

1) Implement Sharda Prasad Panel's Recommendations :-

- Create a robust National Vocational Education and Training system
- Apperenticeship training for all trainees
- concepts like 'dignity of labour' & various career options to be part of secondary school curriculum
- At least 1 skill development centre in a cluster (10-12) of villages
  - It should be linked to the local economy.

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2) create a well-defined monitoring and evaluation framework under NSDC

3) Increase private sectors participat-ion.
eg. NASSCOM - Future Skills Initiative

4) Link skill development with newer technologies.

5) Focus also on socio-economic profiles.
eg. Train manual scavengers to use machines for the same.

Skill development thus requires urgent interventions. This will help India to achieve its goal of becoming a 5 trillion dollar economy.

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14. Despite its importance, agricultural marketing faces various institutional and infrastructural issues in India. Elaborate. Also, enlist the measures that have been taken in this context.

Agriculture is still the mainstay of Indian economy, with around 50% of our workforce engaged in it. However, its GDP contribution is only about 14%. This highlights that agricultural sector is facing certain challenges.

An important aspect of agriculture is the marketing of produce. It faces various ISSUES, such as -

A) INSTITUTIONAL Issues →

1. Agricultural Mandis levy a multitude of fees. This has a cascading effect on prices.

2. Farmers have to sell their produces only in Mandis. This reduces Freedom of choice.

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3) Positions in mandis are usually filled by people with political connections.

4) Corruption and diversion of grains illegally.

5) Issues in e-NAM :-
- digital illiteracy among farmers
- Corruption → grains are auctioned physically & fed into computer later

6) ~~later~~ Cartelization by agents.

B. INFRASTRUCTURAL ISSUES -

1) Swaminathan Commission had recommended at least 1 Mandi in a ~~radius~~ area of 80 km².
- In reality, there exists 1 mandi in ~~radius~~ area of 450 km².
- This hinders access of farmers

2) Lack of transportation for grains
- Farmers forced to sell at nearest Mandis at whatever prices they get.

3) Inadequate warehousing/ storage facilities.

4) No sorting / grading facility

The MEASURES that have been taken in this regard are -

1) Agricultural Infrastructure ~~Development~~ Fund - For long term debt financing to create post-harvest management infrastructure

2) NITI Ayog's ~~Model APMC Act~~ Proposal to develop AGRISTACK - Digital database & technology infra for better price discovery

3) Model APMC Act - to break monopoly of government mandis and give more choice to farmers.

WAY FORWARD
- Focus on creating more storage facilities for produce
- Better info. dissemination about prices to farmers
- Need APMC reforms by taking care of the concerns of various stakeholders.

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Thus, agricultural markets need to be reformed to ensure the viability of agriculture as an economic activity in India

15. Marine litter is not just an environmental issue but poses a socio-economic challenge as well. Discuss. Also, enumerate the initiatives taken by the global community to reduce marine litter.

Marine litter refers to any persistent ~~ma~~ human-made but discarded solid waste material present in seas and oceans. It is a major form of Marine pollution.

Eg. Around 8 million tons of plastic ends up in our oceans every year.

Marine litter poses a big CHALLENGE ~~to~~ -

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कृप्या इस स्थान में प्रश्न संख्या के अतिरिक्त कुछ न लिखें।

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उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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Environment

- Death of Marine Fauna due to ingestion or entanglement
- Creation of Hypoxic 'dead' zones due to algal blooms
- Harms corals → bleaching
- Creation of Gyres - areas with high concentration of plastic like Great Pacific Garbage patch
- Floating plastic can give rise to invasive species as well as bacteria that causes biodiversity loss.

Socio-Economic

- Disrupts food chain and makes it toxic
- Livelihood of fisherifolk affected
- Coastal tourism affected due to waste upto shorelines
- Reduced nutrients to poor people along coasts as they depend on seafood for it.
- Increased cost of beach cleaning & waste disposal
- Gyres can also obstruct navigation → affects shipping industry

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Consequently, various INITIATIVES have been taken by the global community to deal with it -

1) London Convention - regulates dumping of waste from ships (only some non-harmful wastes are permitted)

2) MARPOL - Prohibits discharge of plastics (like fishing gear) into sea from ships.

3) Global Programme of Action for Protection of Marine Environment - To counter the issue of land-based pollution.

4) Global Partnership on Marine Litter -
- By UN Conference on Sustainable Development (Rio + 20)
- Mechanism for coordination
- Harnessing expertise & resources of all stakeholders.

Along with this, we need to shift the focus of general public towards harms of Marine litter. This will develop a global consciousness to restore marine ecosystems.

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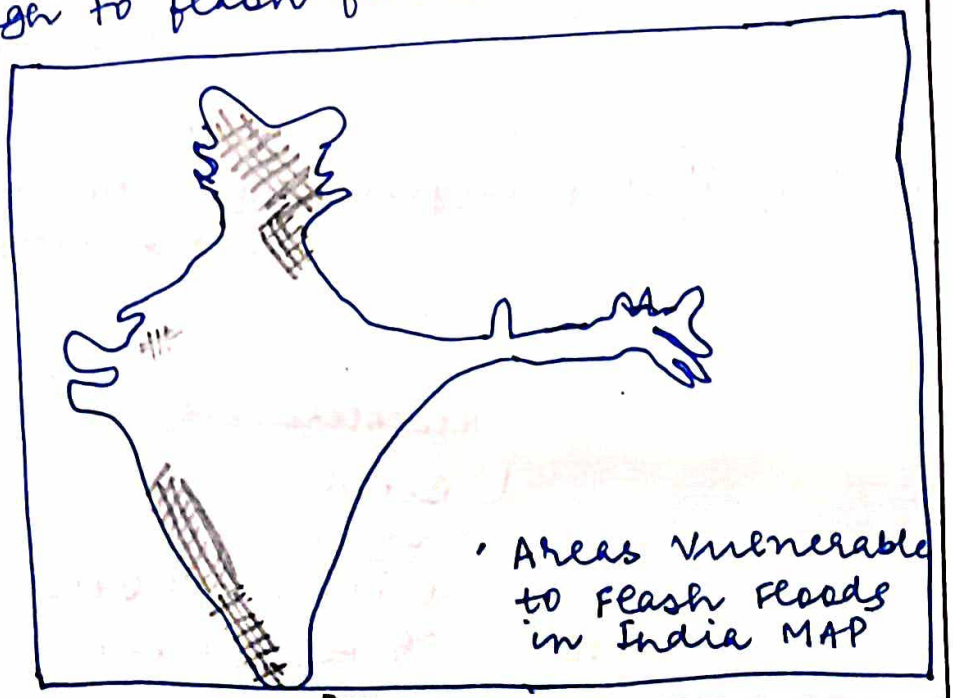
16. Assess India's vulnerability to Flash Floods and suggest measures for better resilience to flash floods. In this context, also briefly highlight the significance of recently launched Flash Flood Guidance system operated by the IMD.

Flash floods are highly localized events of short duration with a very high peak. They usually have less than 6 hours between the occurrence of rainfall and the peak flood.

Being naturally endowed with high mountains and vast rivers, India is VULNERABLE enough to flash floods.



• Areas vulnerable to Flash Floods in India MAP

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1) NORTHERN HIMALAYAS

- Jammu & Kashmir, Uttarakhand, Himachal Pradesh
- Reasons - a) Cloudbursts in hills
  b) Breach of Glacial lakes.

2) WESTERN INDIA

- Luni basin (Rajasthan)
- Western Ghats slopes (Kerala, etc.)
- Reasons - Anthropogenic Activities like construction - reduce water-absorbing capacity of soil

3) URBAN CITIES

- High use of concrete
- Choked drainage systems.

MEASURES for Better Resilience are -

1) Coherent Research
- Generation and collation of all data at 1 point.

2) Monitoring -
- Mapping Flood Zones
- Monitoring Glacial lakes.

3) ~~Compliance~~ Planning -
- Checking indiscriminate construction
- Timely de-clogging of drains

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4) Global Best Practices -

- Tokyo and Kuala Lampur - built extensive water discharge tunnels to hold diverted flood water

Further, India recently started the Flash Floods Guidance System designed by the Indian Metorological Department (IMD).

It provides real time warnings (6-12 hours in advance) at the watershed level for vulnerable South Asian countries like India, Nepal, Bhutan, Bangladesh and Sri Lanka.

SIGNIFICANCE
- Better preparedness for ~~distance~~ disaster.
- Can save lives through timely evacuation
- Paves way for seamless integration of technology in disaster management
- Fosters international cooperation in dealing with disasters
- Better streamlining of resources.

Thus, India and its neighbours will be able to deal with Flash Floods better.

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17. Hydrogen-based energy production can play a key role in a clean, secure and affordable energy future. In this context, identify the potential and opportunities for utilizing hydrogen-based technology. What are the challenges that need to be addressed to fulfill the potential?

In the Budget 2021-22, India announced the launch of National Hydrogen Energy Mission (NHEM). This shows the crucially of Hydrogen based energy technology in India.

Hydrogen-based technology has a strong POTENTIAL in India, which includes-

1) Cleaner Fuel - Hydrogen is 100% clean and the only by-product is water.

2) Alternative Fuel - Ability to power fuel cells in zero-emission electric vehicles.

3) Efficiency - At least 2-3 times more efficient than an internal combustion engine running on

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gasoline.

4) Renewable Energy - Hydrogen is a renewable source of energy.

As such, it has immense OPPORTUNITIES in India as -

1) Due to high air pollution, India is yearning for cleaner fuels.

2) Rapidly growing population - need of efficient energy has increased.

3) Vast automobile market - high growth in demand for electric vehicles.

4) Policy support
   a) India's INDC to achieve net-zero emissions by 2070
   b) Aim to meet 50% energy needs from renewable sources by 2030.

5) Increasing R & D in energy sector → tech-support.

At the same time, there are many CHALLENGES as well.

This includes-

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At the same time, there are many CHALLENGES as well.

This includes-

1) Massive Tech. Expansion - For instance, electrolysis plants that split water into hydrogen and oxygen
- High power will also be needed for the reaction

2) Additional costs for generation, transmission and distribution

3) Storage - Hydrogen is hard to store as it needs to be compressed to 700 atmP and -253°C temperature.
- It is also more explosive

4) Need for a Code of Commercial Standards for consistent deployment

5) Lack of supply infrastructure.

These challenges, when adequately addressed; could pave way for India to have a greener, more sustainable future.

18. Despite the huge promise of satellite-based internet connectivity, it hasn't gained traction on a significant scale, especially in India. Discuss.

Satellite-based internet connectivity operates by sending and receiving broadband signals to a satellite in space, instead of using underground copper/fibre network. It can be achieved by using Geo stationery, Medium and Lower Earth Orbit Satellites.

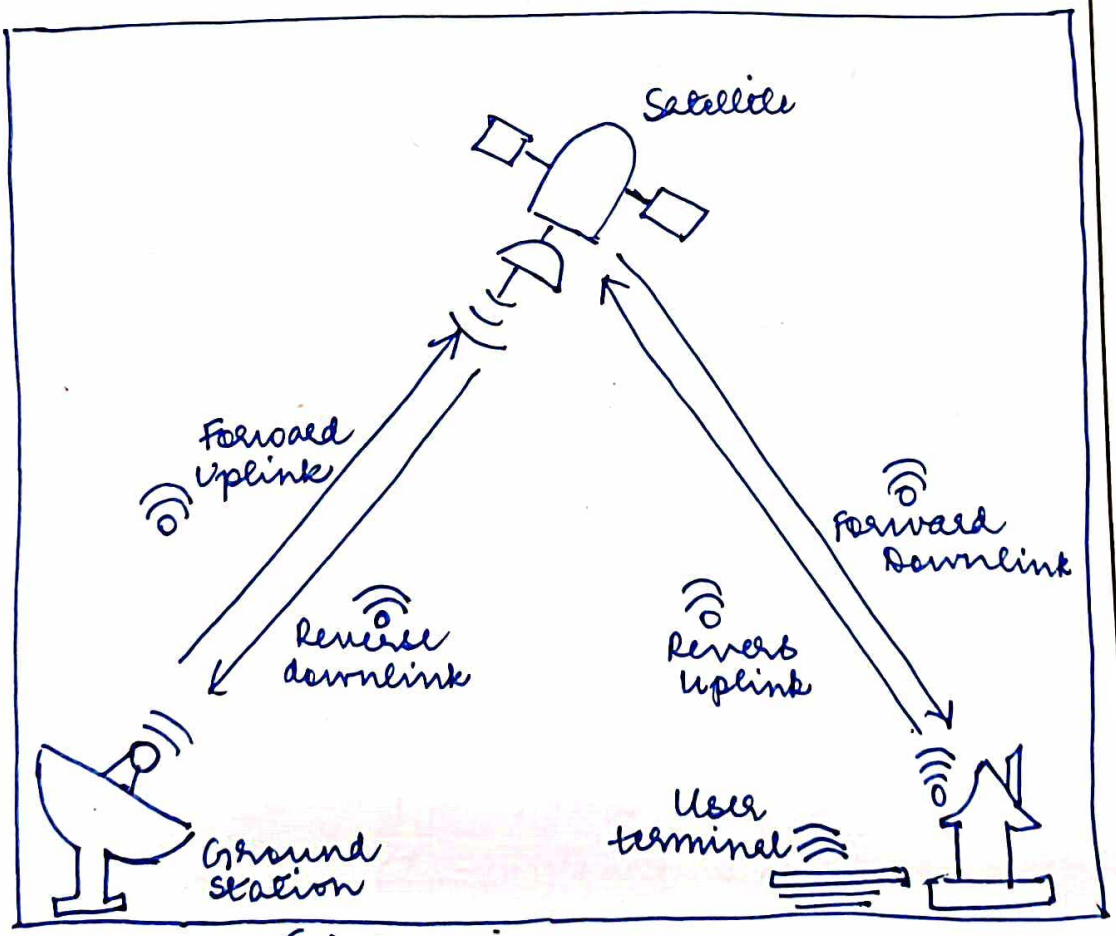

Fig. 1.

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Satellite based Internet promises many ADVANTAGES, such as -

1) Easier to deploy and wider coverage -
   a) Faster rolling out and scaling up
   b) More cost effective
   c) Easier deployment even in remote areas

2) Stronger bandwidth -
   a) can handle higher bandwidth
   b) Internet speed / quality unaffected mostly, even at 'peak use times'.

3) Expansion of Internet -
   a) can provide vital 'backhaul' or connectivity between mobile towers & telecom companies' core network.
   b) ensures uninterrupted coverage.

However, it has not gained significant traction, especially in India; due to various CHALLENGES -

1) High costs to consumers -
   a) Around $ 15 - $ 20 per GB (Normal mobile data costs around $0.68 per GB).
   b) Indian situation is further complex due to the presence of intermediaries which has a cascading effect on prices.

2) Lack of Sufficient Domestic Satellite Capacity -

a) Inadequate access to satellites offering 100-500 Gbps throughout

b) Satcom players can't lease bandwidth capacity directly from foreign operators.

3) Space Debris in LEO -

a) Increased deployment of satellites.

b) More chances of Kessler Syndrome (collisional cascading)

4) Operational Issues -

a) Poor latency or 'high ping rates' as data is sent to space, to individual ISP and back again.

b) Minor weather disturbances can affect signal & internet quality.

Thus, while this have high promises, it need significant pre-requisites as well. Space-X's 'Starlink Project' has already started LEO-based internet. ~~but~~ While there's a lot to learn here, we also need to proceed with caution.

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19. India's attempts at strengthening its intelligence infrastructure and capabilities have historically been reactive and incremental, rather than holistic and sustainable. Discuss. Also, provide a concrete framework in transforming India's intelligence capabilities.

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India today has a sound intelligence architecture, integrating modern technology, departments like RAW and IB as well as complementary armed forces.

However, our intelligence infra and capabilities have historically been reactive and incremental. This can be seen as -

a) Our chief foreign intelligence agency RAW was set up in 1968 only after the debacle in India-China war.

b) Counter terror forces, CCTV network, etc. in major coastal cities (like Mumbai) was ~~was~~ set up after the 26-11 attacks.

Instead, due to complex borders, hostile neighbours etc. India needs to have a holistic

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and sustainable intelligence FRAMEWORK, such as-

1) Better coordination - Appoint a national intelligence coordinator for better coordination, remove overlaps - duplication, end turf-wars, etc.

2) Legal status - Give a statutory basis and charter to intelligence community as well as an institutional level of accountability.

3) Improve Accountability -
- Financial - Annual reports to CAG/HSA
- Separate intelligence ombudsman
- Parliamentary Committee for oversight

4) Technology & Innovation - By creating a tripartite network of government, private sector and academia.

5) Recruitment Reforms - Better training transparent promotions, etc.

6) Gathering information from open sources.

All this will help in improving India's intelligence architecture.

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20. In light of the prominent instances of drone attacks by both state and non-state actors, assess the challenges and capabilities of India in dealing with such security threats.

Drones are now increasingly being used for combat purposes, particularly for attacks on opposite sides. Recently two drone dropped IED explosives on an Indian Air Force base in Jammu, by suspected non-state actors.

This highlights the need to deal with drone-induced security threats to India. There are certain CHALLENGES, like -

1) Inadequate Surveillance - Technology including radar systems that India has deployed along border mostly track bigger objects like planes & missiles

2) Difficult to Track because drones are-
   a) Smaller in size
   b) Higher speeds
   c) Fly at lower altitudes
   d) Have miniscule radar.

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3) Issues in Neutralizing -

a) currently, our only option is to shoot them down after jamming them,
~~b)~~ using eyesight to spot.

b) But most are difficult to detect. So, operational precision is less.

4) Swarm Drones - Multiple drones swarm together to destroy stimulated targets.

a) This confuses detection systems
b) our counter-tech. hasn't been able to keep up.

At the same time, India has gradually acquired CAPABILITIES, in order to be a better position. This includes -

1) Anti-Drone System -

- Developed by DRDO
- Detect and destroy technology
- Yet to be mass-produced.

2) Foreign Collaborations -

- Sea Guardian Predator drones from USA
- Israel's Smash-2000 Plus computerized fire control and electro-optic sights.

WAY FORWARD

- Develop anti-drone defensive technologies like Drone Dome, Interceptor drones, etc.
- Industry-defence-academia linkages
- Focus on being a Major Exporter instead of import → boost up indigenous production
- Human resource development & capacity building
- Integrated defence Modernization with focus on infrastructure.

This will greatly enhance India's security ecosystem.